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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/707,981
Filing Date: January 29, 2004
Appellant(s): KRELLNER ET AL.

John F. Buckert
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 3 March 2009 appealing from the Office action mailed 27 March 2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,828,560	LAMBERT ET AL.	12-2004
5,693,942	ENDO ET AL.	12-1997
5,056,929	WATANABE ET AL.	10-1991

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Lambert et al. (US 6,828,560)

Regarding claim 1, Lambert et al disclose a thermal detection device (Figure 8) comprising first and second thermocouples as claimed (Column 5, lines 52-55; Figure 1, thermocouples 18); a thermal absorber as claimed (Absorber 14); a diaphragm member as claimed (Membrane 16); a support rim as claimed (Frame 12) having a first cavity with a predetermined maximum width; a metal base header (202, formed from metal; Column 6, lines 2-4) supporting the support rim, the metal base header having a second cavity in thermal communication with the first cavity via membrane 16, and having second predetermined maximum width that is greater than the first predetermined maximum width (Figure 8); and wherein the thermocouples generate a voltage as claimed. (Column 3, lines 4-12)

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert et al. (US 6,828,560)

Lambert et al disclose a thermal detection device as described above in addressing claim 1.

Lambert et al is silent concerning the depth of the second cavity.

However, the Examiner notes that in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. In this case, depths such as those claimed would reasonably be expected to provide a concentration effect precisely as described by Lambert et al. Furthermore, a skilled artisan would have been able to select any desired thickness of portion 202, in order to achieve the desired level of concentration.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lambert et al (US 6,828,560) in view of Watanabe et al. (US 5,056,929)

Lambert et al disclose an apparatus as described above in addressing claim 1. They also disclose that absorber 14 is prepared in a conventional manner. (Column 3, lines 3-4)

Lambert et al do not explicitly disclose the thermal absorber being a black body.

Watanabe et al teach that black body absorbers for thermopile-type infrared sensors are conventional in the art. (Column 1, lines 40-61)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Lambert et al by specifically using a black body as the absorber, as taught by Watanabe et al, because the utility of black

bodies as infrared absorbers in thermopile infrared sensors was conventional in the art, as evidenced by the teaching of Watanabe et al. The selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

Claims 1, 5, and 9-11 rejected under 35 U.S.C. 103(a) as being unpatentable over Endo et al (US 5,693,942) in view of Watanabe et al. (US 5,056,929)

Regarding claim 1, Endo et al teaches a thermal detection device (Figure 3B) comprising an infrared detector portion (20) positioned on a diaphragm member as claimed (Membrane visible in figure); a support rim as claimed (10) having a first cavity with a predetermined maximum width; a metal base header (2, formed from metal; Column 4, lines 43-45) supporting the support rim, the metal base header having a second cavity (6a) in communication with the first cavity, and having second predetermined maximum width that is at least as large as the first predetermined maximum width (Figure 3B).

Regarding claim 11, Endo et al teach a cap having a window as claimed. (Cap 4 with window 3. (Figure 3B)

Endo et al teach that the detector is a thermally sensitive resistor film. (Abstract) Endo et al also disclose that such resistors and thermocouples are conventional infrared detectors in such devices. (Column 1, lines 23-27)

Watanabe et al teach an infrared sensor of similar design (Figures 3-7) having first and second thermocouples as claimed, a thermal absorber in communication with the thermocouples, and wherein a diaphragm member supported by a silicon rim supports the detector components, as in Endo et al. (Figures 3-7; Column 3, line 66-Column 4, line 12) Such a thermopile generates a voltage as claimed. Specific to claim 5, the thermal absorber of Watanabe et al is a black body. (Column 4, lines 10-12) Watanabe et al further teach that thermistors and thermopiles are conventional infrared sensors known and commonly used in the art. (Column 1, lines 11-13)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the infrared detector of Endo et al by replacing the resistance-type infrared sensor with a thermopile-type sensor taught by Watanabe et al, because Watanabe et al teach that this sensor design is accurate, and can be manufactured comparably easily. (Column 2, lines 54-59) In addition, both references disclose that resistance-based and thermopile-based infrared detection is conventional in the art, and one of ordinary skill in the art would have been able to select any such known detector type, with the reasonable expectation of success. The combination would have predictably resulted in a functioning infrared detector. Furthermore, a skilled artisan would have recognized that the advantage provided by the cavity within body 2 of Endo et al, namely improved thermal insulation of the absorber from the base (Endo et al, Column 3, lines 9-20) is equally desirable in conjunction with a thermopile sensor, and would thus have been motivated to use a thermopile sensor in the system

of Endo et al, with the reasonable expectation of producing an improved thermopile sensor.

Regarding claims 9 and 10, the Examiner notes that in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), *cert. denied*, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. In addition, the selection of a particular depth of the recess is considered to have been a matter of optimization, within the abilities of on having ordinary skill in the art.

(10) Response to Argument

(A) Rejection of claim 1 under 35 U.S.C. §102(e) as anticipated by Lambert et al. (US 6,282,560)

Appellant argues that Lambert et al does not teach "a metal base header supporting the support rim". The Examiner respectfully disagrees. As an initial matter, the Examiner would like to point out that Appellant includes citations to the embodiment of Figure 5 of Lambert et al. The embodiment relied upon in the rejection is that of Figure 8 of Lambert et al. The Examiner has taken the position that upper portion 202 of Lambert et al, which is disclosed as being made of metal (Lambert et al, Column 6, lines 2-4) reads on the instant "metal base header". It is further the Examiner's position that the upper portion 202 "supports" the support rim via its physical attachment thereto.

Alternatively, upper portion 202 is clearly capable of performing the intended use of "supporting the support rim", were the structure of Figure 8 disposed such that the structure (which includes the support rim, relied on portion 202 for support. Appellant does not address such positions in the arguments, which are directed to the embodiment of Figure 5 of Lambert et al.

Appellant further argues that Lambert et al does not provide any teaching of "the metal base header having a second cavity therein communicating with the first cavity, the second cavity having a second predetermined maximum width at least as large as the first predetermined maximum width". Again, the Examiner respectfully disagrees. As stated in the rejection, Figure 8 shows upper portion 202 having a cavity that is in thermal communication with the first cavity via membrane 16, and Figure 8 clearly shows the maximum width of the second cavity being larger than the maximum width of the first cavity. Again Appellant has failed to address these positions. As no persuasive arguments against the grounds of the rejection have been provided, the rejection is believed proper and is maintained.

(B) Rejection of claims 9 and 10 under 35 U.S.C. §103(a) as unpatentable over Lambert et al. (US 6,828,560)

Appellant argues that Lambert et al fails to teach the limitations recited in claims 9 and 10, and the rejection is therefore improper.

Claims 9 and 10 recite specific depth dimensions for the second cavity, and as pointed out in the rejection, Lambert et al is silent on this matter.

The Examiner has taken the position that in the absence of any evidence that the selected dimension provides a difference in performance, the recitation of a particular dimension does not provide patentable distinction. (Citation to *Gardner v. TEC Systems, Inc.* decision in the rejection) Furthermore, it is also the Examiner's stated position that selection of a thickness of upper portion 202 (i.e. depth of cavity as shown in Figure 8) in Lambert et al as claimed would have been obvious to one having ordinary skill in the art depending on the desired degree of concentration. Appellant has provided no rebuttal or evidence of the significance of the claimed dimensions, and therefore the rejection is believed to be proper and is maintained.

(C) Rejection of claim 5 under 35 U.S.C. §103(a) as unpatentable over Lambert et al (US 6,828,560) in view of Watanabe et al. (US 5,056,929)

Appellant argues that Watanabe et al does not provide any teaching of "the metal base header having a second cavity therein communicating with the first cavity, the second cavity having a second predetermined maximum width at least as large as the first predetermined maximum width". This is not persuasive because Lambert et al provides this teaching, as described above. Watanabe et al is relied upon as teaching that black-body absorbers are conventional infrared absorbers for thermopile-type infrared sensors, and use of such a black-body absorber for the absorber required by Lambert et al would have been obvious to one having ordinary skill in the art. Appellant provides no argument or evidence against this position, and the rejection is therefore believed to be proper and is maintained.

(D) Rejection of claims 1, 5, and 9-11 under 35 U.S.C. §103(a) as unpatentable over Endo et al (US 5,693,942) in view of Watanabe et al. (US 5,056,929)

Appellant argues that no proper motivation for combination of these references has been provided and that the references do not teach every limitation of the claims. The Examiner respectfully disagrees.

Appellant argues that the combination of Watanabe et al with Endo et al involves provision of both a thermopile element 1 and thermistor 2 of Watanabe et al to the device of Endo et al, which would lead to a structure that does not meet the limitations of the claim. However, this is not the rejection that was made, and Appellant has chosen one embodiment of Watanabe et al that is not suitable for the combination, and which was not the basis for the rejection. The rejection is based on the obviousness of replacing the thermistor with a thermopile having the instant thermocouples, not provision of a sensor with both a thermistor and thermopile.

As stated in the rejection, the Examiner's position is that it would have been obvious to replace the thermistor-type detector of Endo et al with a thermopile-type sensor as taught by Watanabe et al (e.g. Figure 4 shows the thermopile-type sensor; described in Column 3 line 66- Column 4, line 12; also Column 4, lines 51-56), because Watanabe et al teach that such thermocouple-based sensors provide accurate measurement and relative ease and simplicity of manufacture (Column 2, lines 54-59), and because both Endo et al and Watanabe et al recognize that both types of sensors are conventional in the field of infrared detection. (Endo et al at Column 1, lines 23-27;

Watanabe et al at Column 1, lines 11-13) The modification thus also amounts to selection from among conventional sensor types known to those skilled in the art to be effective infrared sensors. Such selection is considered to have been obvious to one having ordinary skill in the art. These considerations are considered to provide ample motivation for the combination, in contrast to Appellant's unsupported assertion that no proper motivation was provided.

As is clear from the structure disclosed by Endo et al (Figure 3B), the cavity (6A) in the base header (2) communicates with the cavity within the sensor-supporting rim (10), and cavity 6A has a maximum width that is at least as large as the maximum width of the cavity within rim 10. This structure is not altered by the combination, as the only modification of Endo et al is the replacement of the thermistor 20 with the thermopile and absorber of Watanabe et al. Accordingly, all limitations of the claim are met.

Appellant further argues that the proposed combination would destroy the functionality of the primary reference. It is unclear how the selection of an alternative type of infrared sensor, which is clearly recognized as an appropriate sensor in the art, would have destroyed the functionality of Endo et al. Both Endo et al and Watanabe et al recognize thermistors and thermopiles as effective infrared sensors. One skilled in the art would have had full expectation that a functional infrared sensor would result from the combination, which is precisely the disclosed function of Endo et al.

Regarding the rejections of claims 9 and 10, the Examiner has taken the position that in the absence of any evidence that the selected dimension provides a difference in performance, the recitation of a particular dimension does not provide patentable

distinction. (Citation to *Gardner v. TEC Systems, Inc.* decision in the rejection) Appellant has provided no rebuttal or evidence of the significance of the claimed dimensions, and therefore the rejection is believed to be proper and is maintained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Jeffrey T. Barton/

Jeffrey T. Barton

3 June 2009

Conferees:

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